WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶: B32B 7/02, 27/36, G02B 5/30

A3 (11)

(11) International Publication Number:

WO 96/19347

(43) International Publication Date:

27 June 1996 (27.06.96)

(21) International Application Number:

PCT/US95/16555

(22) International Filing Date:

19 December 1995 (19.12.95)

(30) Priority Data:

08/359,436 08/402,041 20 December 1994 (20.12.94) US

1 March 1995 (01.03.95)

US

(71) Applicant: MINNESOTA MINING AND MANUFACTUR-ING COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(72) Inventors: JONZA, James, M.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US). WEBER, Michael, F.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US). OUDERKIRK, Andrew, J.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US). STOVER, Carl, A.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(74) Agents: FORTKORT, John, A. et al.; Minnesota Mining and-Manufacturing Company, Office of Intellectual Property Counsel, P.O. Box 33427, Saint-Paul, MN 55133-3427 (US).

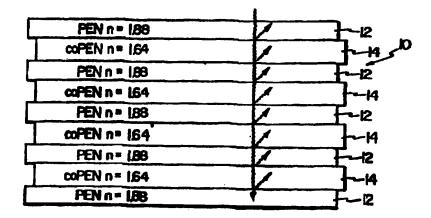
(81) Designated States: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, LS, MW, SD, SZ, UG).

Published

With international search report.

(88) Date of publication of the international search report: 29 August 1996 (29.08.96)

(54) Title: MULTILAYERED OPTICAL FILM



(57) Abstract

Birefringent optical films (10, 12, 14) have a Brewster angle (the angle at which reflectance of p-polarized light goes to zero) which is very large or is nonexistant. This allows for the construction of multilayer mirrors and polarizers whose reflectivity for p-polarized light decreases slowly with angle of incidence, are independent of angle of incidence, or increase with angle of incidence away from the normal. As a result, multilayer films (10) having high reflectivity (for both planes of polarization for any incident direction in the case of mirrors, and for the selected direction in the case of polarizers) over a wide bandwidth, can be achieved.